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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the matter of	)	
	)	
Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing them	)	PR Docket No. 92-235

COMMENTS OF
UNIDEN AMERICA CORPORATION

INTRODUCTION

1. Uniden America Corporation (hereinafter "Uniden") respectfully submits its comments to the above captioned Notice of Proposed Rule Making ("NPRM"). Along with its parent corporation and affiliate companies, Uniden manufactures and markets a broad line of communications equipment, such as radios used in the Private Land Mobile Radio ("PLMR") service. The Commercial Communications Division of Uniden is one of the major suppliers of innovative products for this market.

SUMMARY

2. Uniden is pleased to support the objectives of this NPRM although we disagree with certain proposals. We believe that there

are fundamental flaws in some of the proposed channel spacing schemes. As will be discussed further, we believe that a common channel spacing system should use the smallest usable division which

transmitter techniques to provide high quality audio plus simultaneous data, for trunking control, all within the 4 kHz bandpass of a 5 kHz channel scheme. Since the process of reorganizing the existing PLMR spectrum will subject all users and suppliers to many inconveniences, Uniden believes that the Commission should be sure to specify the smallest possible channel increment (Lowest Common Denominator) as the basis for the reorganization plan, otherwise it may be necessary to revisit this same initiative in only a few years.

6. Based on our experience, Uniden recommends that the Commission consider a 5 kHz channel plan in both the VHF and the UHF PLMR bands. We think that the public and the industry is well served by this suggestion especially in the UHF band where a 6.25 kHz scheme is currently proposed. The additional 1.25 kHz has little impact on the performance of VNB designs and elimination of it will yield 5 channels from every current channel instead of only 4 from a 6.25 kHz scheme. Additionally, frequency management and control will be much easier to understand and coordinate with a 5 kHz uniform spacing. Furthermore, manufacturers will find it easier to design radios with identical channel spacing, thus the cost of these products will be reduced. A 5 kHz channel scheme is highly efficient and will utilize the valuable spectrum resource better than the current 6.25 kHz proposal.

7. Most VNB designs use linear transmitters and sophisticated modulation systems, this combination is often referred to as "linear modulation". These combined technologies can provide a useful fringe benefit in that it is possible to design them for a combination of various modulation and bandwidth types, including VNB and the current 25 and 30 kHz Frequency Modulated ("FM") systems. One possible transition strategy would be to mandate the use of multi-mode radios after a certain date, and then to encourage early conversion to the efficient mode by allowing the "*two for one*" channel splitting already proposed. Then a PLMR system owner or operator who needed additional capacity would have an incentive to convert early and the combined overall volume of radio sales would help lower the cost of the new technology models. Subsequently, when all of the remaining systems are required to convert, these multi-mode models could be easily reprogrammed to the new format at a minimum of inconvenience or cost. During the conversion phase multi-mode radios would also be capable of roaming between old and new technology systems.

8. Very Narrow Band systems have many very similar characteristics to existing equipment making it easier for system owners to convert. VNB systems can use the same types of antennas and combiner equipment used by the current systems. The range, or coverage area, of a VNB system, with equal power levels, will be the same as the current system.

9. Data and digital communications are becoming a very important part of the radio business. Most current VNB designs already include data modems since they are easy to make when a DSP is already built into the radio. Currently most VNB manufacturers offer data rates of 1200 bits per second (bps) and soon many, including Uniden, will provide the capability of 9600 bps (with no effect on range).

10. Because of their coverage, cost and flexibility, VNB systems are an excellent choice for the traditional "*single channel per carrier*" system. However, contiguous channels could be combined ("stacked") and VNB technology could be used to create dynamic "*multi channel per carrier*" systems. Since channel usage is controlled by DSP's, it is possible to partition the amount of the channel used according to current user needs. This concept is sometimes referred to "as bandwidth on demand" and is often used by telephone carriers. For

11. Time Division Multiple Access ("TDMA") is a "*multi channel per carrier*" system and is therefore not very suitable for single channel systems. The primary application for this technology is to increase the capacity of wide band channels. Since this technology is very expensive it is best suited for concentrated markets where heavy loading is expected. It is not cost effective for rural or small private systems. Of course, if VNB channels were stacked it would be possible to use this technology if desired.

12. Code Division Multiple Access ("CDMA") is not considered suitable for PLMR. CDMA, which is a wide band digital system, needs a large amount of coordinated spectrum to operate properly. This equates to a large number of channels currently in use, or even proposed. Therefore, this technology would face implementation difficulties in an already congested frequency band, since extensive coordination with existing users would be needed to prevent interference. Uniden believes that this would impose too much of an unnecessary burden on the current users, and frankly, has little or no advantage over our proposed VNB technology.

CONCLUSION

13. Uniden is convinced, through experience, it is possible to have both high quality voice and high speed data within a 5 kHz channel

spacing scheme. This, we believe, represents the smallest possible channel increment that could service the interests of radio users and provide all of the necessary services. However, channel stacking should also be allowed in those situations where a provider has demonstrated that a need exists for additional bandwidth and that this resource will be utilized in a manner at least as efficient as an equivalent amount of very narrow band channels.

14. Uniden strongly supports the simplification of the Commission's rules, as proposed in the NPRM, by eliminating most of the existing user services. We are in favor of creating user pools of contiguous channels for the purpose of channel stacking. With this flexibility, almost every current and proposed technology would have an application plus there will be continued incentive to develop even more spectrally efficient technologies.

15. Since Uniden is one of the largest manufacturers who relies almost exclusively on Two Way Radio Dealers as a distribution system, we have developed a great respect for the generally small business people and believe they are the "backbone of the PLMR industry". Therefore, we are very concerned that extreme care must be taken during these proceedings; otherwise, these dynamic organizations could be locked out of system ownership by virtue of excessively complex and costly equipment. VNB equipment will allow these

entrepreneurs to inexpensively convert their systems as need or regulations require.

16. Finally, we believe that it would take a significant amount of effort to modify our existing products for 12.5 and 15 kHz operation, and therefore oppose this proposal. Instead , we strongly encourage the Commission to proceed directly to the 5 kHz channel spacing plan. It would be better to spend development budgets on narrow band technology which is much more spectrally efficient and which will provide superior radio communications systems for the next century.

Respectfully submitted,

May 25, 1993

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